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Interest Rate Structure and Monetary Policy Implementation in Mainland China

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Deregulation and financial market development have changed the structure of interest rates and their significance in monetary policy transmission and implementation in China. The role of market interest rates has increased owing to banking sector reforms and growth of direct financing for corporations. As a result, the value of the benchmark lending and deposit rates set by the People's Bank of China (PBoC) has declined as an indicator of monetary conditions and policy stance. For PBoC watchers, it is important to follow changes in the repo interest rate, which is the most representative money market rate, as well as the issuing rate of central bank bills, which are heavily used for reducing liquidity in recent periods. In particular, the real repo rate remains low by historical standards, despite some recent increases, suggesting relatively easy monetary conditions.

Introduction

Interest rate deregulation has progressed rapidly in Mainland China (hereafter China) in recent years. Commercial banks, whose operations are increasingly run on a profit-oriented basis owing to reforms, now have flexibility in setting interest rates subject to a floor for loans and a ceiling for deposits. At the same time, the increased depth of money market and rapid growth of short-term corporate bond issuance have helped to develop market-based short-term interest rates. This in turn has improved

the effectiveness of open market operations by PBoC as a policy instrument. The central bank also sets a range of interest rates, and their respective significance in policy transmission and implementation has changed along with market developments and reforms.

Therefore, a proper reading of monetary policy issues in China requires a good understanding of these changes. Indeed, while most commentators tend to focus on headline monetary policy issues related to the levels of the RMB exchange rate and

interest rates, the implementation considerations are probably just as important. For example, how effective is a rise in interest rates in attaining a desired tightening of monetary conditions? What interest rate is the most effective instrument of implementation, and relatedly what is the most representative rate for assessing the policy stance of the central bank? Why is “moral suasion” or administrative measures on bank credit expansion still needed? This paper attempts to shed light on these issues by providing an analysis of the structure of interest rates and its implications for monetary policy transmission and implementation.

Interest Rate Structure

Currently interest rates in China can be broadly categorised into three groups: central bank lending and deposit rates; commercial bank lending and deposit rates; and market interest rates.

Central bank lending and deposit interest rates are set by the PBoC and are part of its monetary policy instruments. These include central bank lending rates, rediscount rate and rates on required reserves and excess reserves. The central bank lending rates are rates on PBoC’s lending to commercial banks for short-term (within one year) liquidity. In recent years, such lending is not active, reflecting the ample liquidity in the system. The rediscount rate is the rate on loans to commercial banks with commercial bills used as collateral. These bills are already discounted once by commercial banks for lending to non-bank corporations. The rediscount rate is normally lower than the central bank lending rate because the latter is non-collateralised at short maturities. The interest rate on excess reserves provides a de facto floor for short-term inter-bank interest rates as commercial banks can always place excess liquidity with the PBoC. Lending to commercial banks, and excess

reserve placement are passive or standing facilities, and the associated interest rates are changed infrequently. Appendix I lists the current levels of interest rates set by the PBoC.

Commercial bank lending and deposit rates were traditionally controlled by the PBoC, but have been largely liberalised in recent years. The liberalisation has taken the form of allowing an increasing band around the benchmark rates set by the PBoC. On 1 January 2004, the PBoC widened the band of the lending rates to between 0.9 and 1.7 times of the benchmark rates for commercial banks and urban credit cooperatives, and between 0.9 and 2 times for rural credit cooperatives. On 28 October 2004, it removed the upper limit of lending rates and only kept the lower limit for commercial banks and urban credit cooperatives, and widened the band for rural credit cooperatives to between 0.9 and 2.3 times of the benchmark rates. According to the PBoC’s monetary policy implementation report in the first quarter of 2006, currently about half of the total loans are priced at between 0.9 to 1 times the benchmark lending rate, and the effective lending rates are generally higher than the benchmark rates, sometimes by a large margin. Bank deposit rates were also deregulated except a ceiling set by the benchmark rate.

Market interest rates include inter-bank offer rates, repo rates, bill discounting rates and bond yields. These interest rates are fully liberalised except issuing rates of corporate bonds and commercial papers (see below). The inter-bank borrowing, repo transactions and bill discounting markets are markets for short-term liquidity (money market). Participants in the inter-bank borrowing market are commercial and policy banks and non-bank financial institutions, while participants in the repo market include large corporations and the central bank. Repo transactions have increased rapidly in recent years, and the

repo rates have become probably the most representative money market rates (Table 1). Bill discounting transactions have also risen fast, and were the second largest segment of the money market in 2005.

The bond market trades both short-term and

long-term instruments. The former includes central bank bills, short-term treasury bills, and commercial papers, and the latter consists of treasury bonds and corporate bonds (Box 1 provides a summary of the money and bond markets).

Table 1: Market-Based Interest Rates

	Year of Liberalisation	Transaction Volume in 2005 (RMB Trillion)	Representative Rate	Current Level (% p.a.) (as of May 31)
Inter-bank offer rates	1996	1.30	7-day	1.86
Repo rates	1997	18.20	1-day	1.50
			7-day	1.67
Bill discount rates (interbank)	1998	6.80		
Issuing Rate in Bond Market				
Treasury Bonds	1996	0.70	7-year***	2.62
Financial Institution Bonds	1998	0.72	2-year***	2.46
Central Bank Bill	2003	2.80	3-month	2.10
			1-year	2.36
Corporate Bonds*	1987 **	0.06	20-year ***	4.15
Commercial Papers*	2005 **	0.14	1-year ***	3.23

* Issuing rates of corporate bonds and commercial papers are still controlled by the PBoC with reference to market rates.

** Year of the first issuance.

*** For illustrative purpose only. Issuing rates vary by maturity and credit rating.

Source: CEIC, www.chinabond.com.cn, 2005 China Financial Market Development Report, April, 2006, China Financial Publishing House

As part of the financial sector reform, commercial paper and corporate bond issuance grew fast in recent years. The total issuance of corporate bonds in 2005 was RMB 65.4 billion, more than double the size in 2004. The commercial paper was introduced in May 2005 and the issuers are mainly large corporations. The total issuance was RMB 145.4 billion in 2005, and rose to RMB 212.5 billion at the end of April 2006. The PBoC sets a band for the issuing rate of commercial papers at a level above the prevailing market rates in order to limit the crowding-out effect on bank lending. For similar reasons, the issuing rates of corporate bonds are set between

yields of corresponding treasury bonds and commercial bank benchmark lending rates, to allow a healthy spread on both sides to facilitate market development and to mitigate the impact on bank lending.

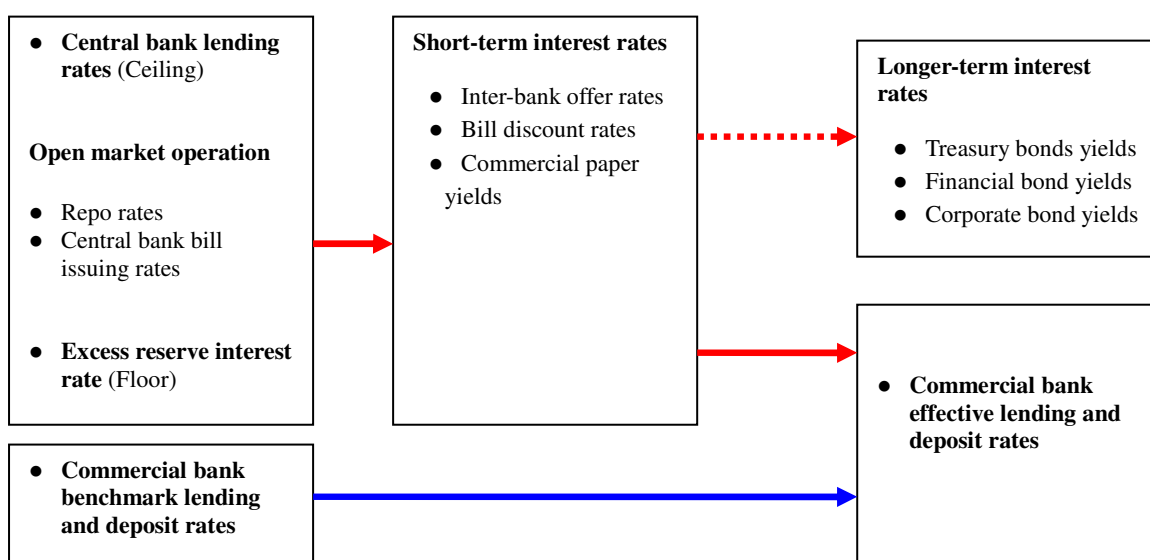
Despite the rapid growth of primary issuance of commercial papers and bonds, trading in the secondary market is not active, reflecting mainly captive demand for these instruments by commercial banks, insurance companies and mutual funds for their risk management purposes. As a result, there is not a well-established yield curve.

At the risk of over simplifying the

underlying relationship, Chart 1 attempts to summarise the current structure of interest rates. At the left-end of the spectrum are interest rates that are set by the PBoC or directly involve the central bank as a party to the transaction. The central bank lending rate and the interest rate on excess reserves provide a ceiling and floor to money market interest rates. Within the

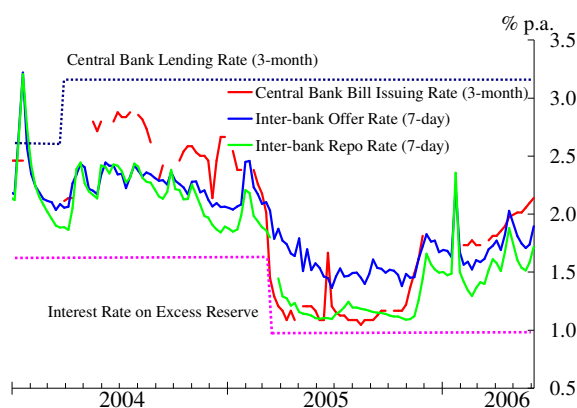
range the PBoC conducts open market operations through repo transactions, central bank bill issuance and foreign exchange transactions to influence movements of the money market rates. Box 2 provides more detailed information on open market operations by the PBoC.

Chart 1: A Summary of Interest Rate Structure



In the middle of the spectrum are money market and other short-term interest rates. Chart 2 shows that interbank offer rate, repo rate, central bank bill issuance rate have moved in step. Indeed, the correlation coefficient is 0.94 between the representative 7-day repo rate and 7-day interbank borrowing rate, and 0.87 between the 3-month central bank bill issuance rate and 7-day interbank borrowing rate. This suggests that the transmission from PBoC's "operating" interest rates (repo rate and central bank bill issuance rate) to other market rates is quite efficient. It is also noted that market interest rates have moved at a level close to the floor set by the interest rate on excess reserves, reflecting the abundant liquidity in the system.

Chart 2: Short-term Inter-bank Interest Rates



Source: CEIC

At the right-end of the spectrum are longer-term interest rates such as bond yields. Treasury and financial bonds are

issued by auctions and thus the rates are market determined. While the issuing rates of corporate bonds are set by the PBoC, as noted above, they are still affected by the trend in market interest rates, as the central bank strikes a balance between limiting the impact on banks and fostering market development. Of more importance is the approval procedure for corporate bond issuance, and the resulting limited supply which has contributed to an illiquid secondary market. Thus, the usefulness of bond yields as an indicator of long-term borrowing cost for corporations is still limited.

Finally, while the benchmark lending and deposit rates set by the PBoC provide a floor and ceiling, the actual rates offered by commercial banks are affected by developments in market interest rates, owing to the competition of direct financing for the corporate sector.

Monetary Policy Transmission Mechanism

Interest rate liberalisation has implications for both monetary policy transmission and implementation. We outline the monetary policy transmission mechanism before discussing some policy implementation issues at present.

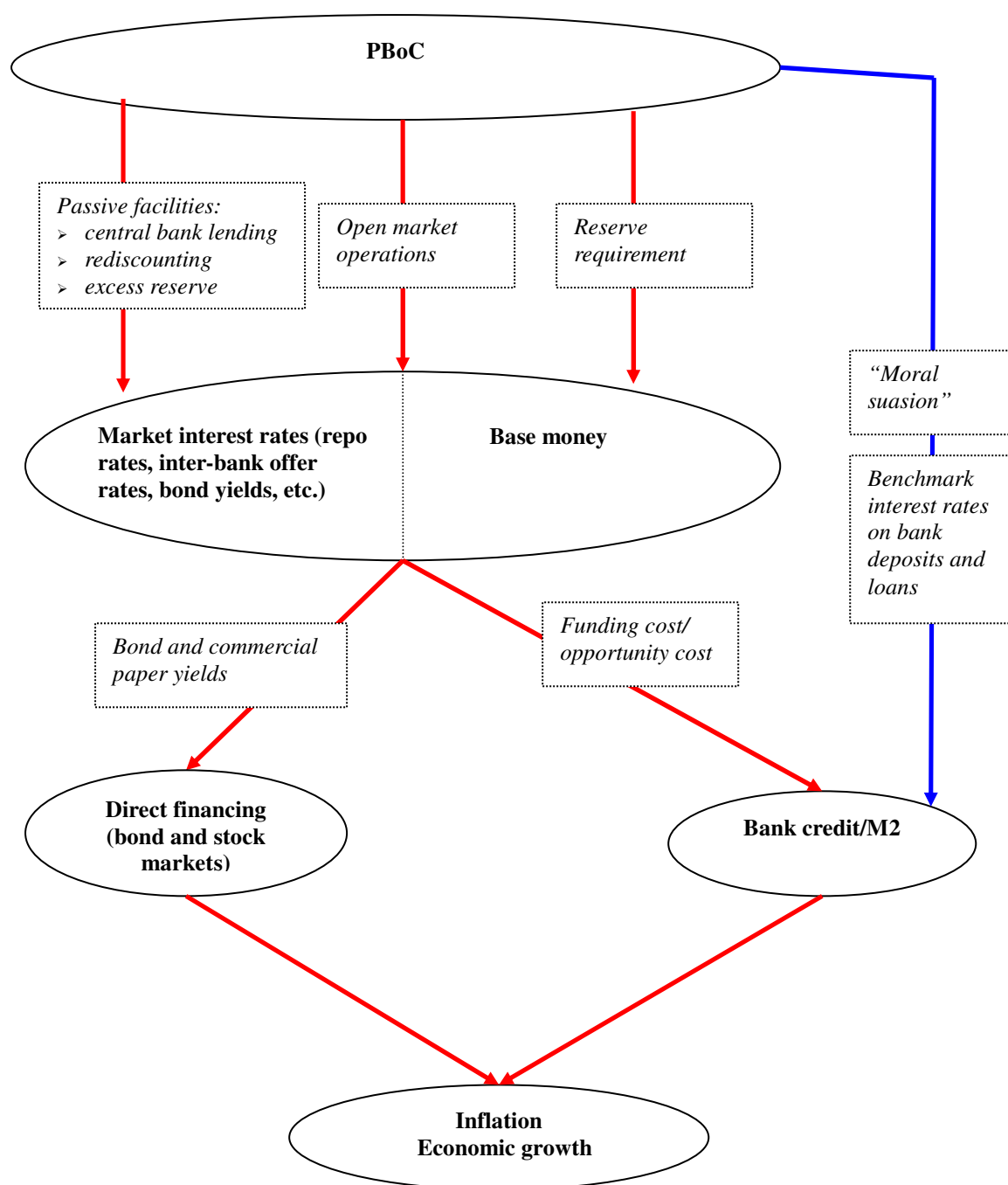
Under the current policy framework, the PBoC sets at the beginning of each year numerical values for money supply growth and increase in bank credit as the intermediate targets for achieving the final objectives of price stability and economic growth. During the course of the year, the PBoC monitors developments in the intermediate targets, as well as other macroeconomic variables such as inflation and growth to decide whether policy

adjustment is needed. To implement policy actions, the central bank employs a wide range of instruments such as reserve requirement, open market operations and moral suasion on banks.

Chart 3 outlines our reading of the monetary policy transmission mechanism in China. There are two main channels: bank credit and direct financing. Bank credit has been the main transmission channel. With the reform of the banking sector and interest rate deregulation, direct controls on bank lending by the central bank have been much reduced. Nevertheless, the PBoC continues to use moral suasion or window guidance, and sets the benchmark lending and deposit rates, with a view to influencing credit demand and supply. Of increasing importance is the indirect tools used by the central bank, including reserve requirement, passive facilities such as central bank lending and excess reserve placement, and open market operations, to affect money market interest rates. The latter affect bank credit growth because they represent funding costs for small and medium-sized banks which tend to borrow in the interbank market, and opportunity cost of lending to customers for large banks who are net lenders in the interbank market.

The direct financing channel refers to firms raising funds directly from financial markets such as the bond market or the stock market. In recent years, the stock market has been weak and has not been a significant source of direct financing for corporations. However, the development of the commercial paper market has provided an increasingly important platform for large corporations to raise funds. Changes in inter-bank interest rates affect commercial papers and bond yields, therefore external financing for corporations.

Chart 3: Monetary Policy Transmission Mechanism



Current Issues in Monetary Policy Implementation

In recent years, the PBoC has employed a combination of tightening measures to address overheating concerns. In particular,

since April 2006, the central bank has raised the benchmark bank lending rate, intensified open market operations, held two window guidance meetings for banks, and most recently increased the reserve requirement ratio by 0.5 percentage point to 8%,

effective from 5 July 2006. There is much interest in reading the policy stance of the PBoC, and views often differ on the role of interest rates and the effectiveness of specific operating instruments. In terms of interest rate, attention has been focused on the one-year benchmark lending and deposit rates, but is this valid given the changes in the interest rate structure? Based on the analysis in the earlier part of the paper, we provide brief comments on some of the current issues in monetary policy implementation.

Role of interest rates

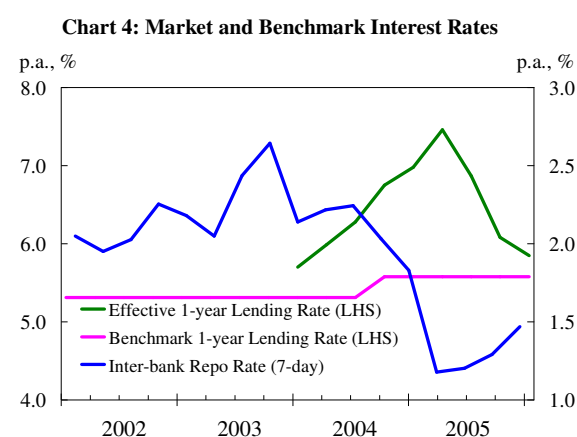
The role of interest rates in resource allocation has increased in the past decades along with the economic reform. In particular, the progress of banking sector reforms in recent years, including the listing of large state-owned banks, has made banks more profit-oriented, and more sensitive to changes in interest rates than before.

The significance of interest rates in monetary policy transmission and implementation is evidenced in two recent developments. First, issuance of commercial paper has become an increasingly important substitute for bank credit for large corporations. The amount of funds raised was equivalent to 8.1% of the increase in short-term bank loans in the first four months of 2006. This is remarkable, considering that only large corporations with good credit ratings have access to the market, and bank credit itself rose fast during the period. The development of the market was boosted by the low interest rates in the money market. As of 31 May 2006, the issuing interest rate of one-year commercial paper was just over 3%, compared with the benchmark bank lending rate of 5.85%. Second, bills discounting by banks has grown fast recently, also helped by low market interest rates. In the first quarter of 2006, of the total rise of RMB 1.26 trillion in outstanding loans, about 25% or RMB 310 billion was

contributed by bills discounting.

Benchmark vis-à-vis money market rates

Owing to deregulation, the benchmark lending rate, which sets a floor for the actual lending rate by commercial banks, is not as important as it is generally perceived in monetary policy transmission. Chart 4 compares the benchmark rate with the effective lending rate reported by the PBoC in its monetary policy implementation reports. It shows a marked deviation between the two in both levels and the direction of movement. The deviation reflects in part the influence of market interest rates. Chart 4 also shows that the effective lending rate moved with the repo rate with a lag. This reflects the gradual pass-through of changes in market rates to bank lending rates.



Source: CEIC

It is thus increasingly difficult to insulate bank lending from the influence of changes in money market interest rates. While the benchmark rate still plays a role as a policy instrument to the extent that it sets a lower limit to lending rates, its effectiveness will be reduced in the absence of a coordinated move in the money market. In this respect, the latest increase of the reserve requirement by the PBoC is important for raising money market interest rates and tightening overall financial conditions. In short, to assess monetary conditions in China, it is important to pay attention to money market

rates, in addition to the benchmark bank lending and deposit rates.

Representative policy interest rate

The PBoC employs a combination of instruments to adjust interbank liquidity and hence money market interest rates (Table 2). Reserve requirement is a broad-based and the least flexible instrument. It also embodies an element of penalty on commercial banks, as the interest rate on required reserves is lower than the prevailing market interest rate. However, reserve requirement is a powerful tool to deal with “structural” imbalance in interbank liquidity.

Table 2: Instruments for Liquidity Adjustment

	Maturity	Interest rate (%, as of May 31)
Reserve requirement	n.a.	1.89
Central bank bill issuance	3-month, 6-month,	2.06 (3-month)
	1-year, 3-year	2.36 (1-year)
Targeted issuance	1-year	2.11
Repo transaction	7-day, 1-month,	1.70 (7-day)
	3month	
Currency swap	1-year *	RMB7.85/USD *

* For illustration purpose, based on the publicised deal done in November 2005.

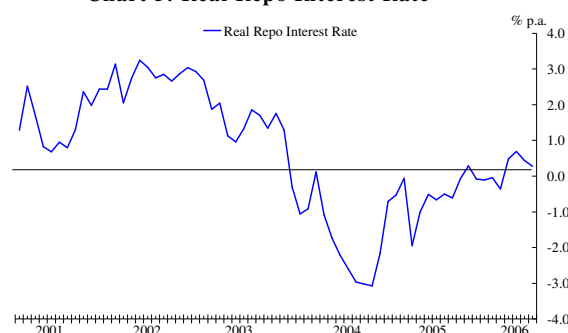
Source: CEIC, PBoC

Central bank bill is a more flexible instrument than reserve requirement, as the frequency and size of issuance can be fine-tuned to limit disruptive effect on banks’ liquidity management. It is also more market based, as the central bank pays interests at the prevailing market level. However, owing to the burden of rising liquidity on open market operations, the PBoC has also issued central bank bill to targeted commercial banks at a penalty rate. For example, the PBoC issued RMB 200 billion one-year central bank bills to targeted banks within the past month at an interest rate of 2.1%, compared with the prevailing market rate of 2.4%.

Repo transactions are the most flexible tool, which can be used to both withdraw and inject liquidity by the central bank.

Overall, it seems that the PBoC has used reserve requirement, and central bank bill issuance to withdraw the structural surplus in liquidity, while relying on repo transactions for fine-tuning. The repo rate is perhaps the most representative interest rate for assessing monetary conditions. For reading PBoC’s policy stance, it is also useful to monitor changes in central bank bill issuing rates. Chart 5 shows that the real repo rate (adjusted for year-on-year inflation) remains low compared with the historical levels, notwithstanding some recent increases.

Chart 5: Real Repo Interest Rate

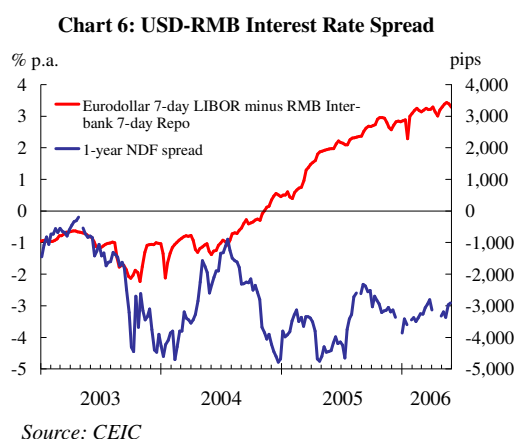


Source: CEIC

Moral suasion

To deal with banks’ urge to lend on easy liquidity conditions, moral suasion has been an important tool for the PBoC. Traditionally, administrative controls on bank credit expansion were motivated by interest rate regulation and non-commercial-based operation of banks. These concerns have been much reduced now, but new constraints have developed. One is the local government’s influence on commercial banks’ operation, owing to their significance in driving local economic activity. Another is related to the exchange rate policy. In order to limit the upward pressure on the exchange rate, the PBoC has maintained a significant negative spread between the renminbi and US dollar short-term interest rates (Chart 6). This is partly helped by the interest rate increases of the Fed, and it remains to be seen how

the spread will be affected by the latest increase of reserve requirement. The authorities continue to face the policy dilemma of achieving two objectives (related to domestic monetary conditions and the RMB exchange rate) with one instrument. Moral suasion perhaps serves as an additional tool to limit the pace of credit expansion by banks.



Conclusions

China's interest rate structure has changed significantly in recent years, owing to deregulation and the development of

financial markets. This, combined with the progress in banking sector reform, has increased the role of interest rates in both resource allocation and monetary policy transmission and implementation. Our analysis points to two main observations. First, the benchmark bank lending and deposit rates—to which commentators tend to pay most attention—have become less significant as a representative rate for assessing monetary conditions and PBoC's policy stance. The repo rate should be an equally—if not more—important indicator. Second, the increased role of market-based interest rates also highlights the policy dilemma between the need to tighten monetary conditions to address overheating concerns and to maintain a significant negative interest rate spread to limit pressure on the RMB exchange rate. This partly explains why moral suasion is used to restrain bank credit expansion, which has been stimulated by ample liquidity in the system. However, the use of moral suasion is likely to face resistance from banks, as they are increasingly run on commercial terms.

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About the Series

China Economic Issues provide a concise analysis of current economic and financial issues in China. The series is edited by the External Department.

Box 1: China's Money Market and Bond Market

Money Market:

The money market consists of the interbank money market, the repo market, and the bill discounting market.

The interbank lending business started in mid-1980s, but a unified national interbank money market was not available until January 1996. After the upper limit of interbank lending rates was lifted on 1 June 1996, the interbank offer rates were fully liberalised. Participants in the interbank money market have grown from 55 in 1996 to 695 at the end of 2005. They include policy banks, commercial banks (domestic as well as foreign), urban and rural credit cooperatives, securities firms etc.

The interest rates prevailing in the inter-bank money market are called China Inter-Bank Offer Rates (CHIBOR), with maturity varying from overnight to four months. In 2005, overnight and seven-day lending accounted for 18% and 70% of the total transactions, while lending with maturity longer than one month accounted for less than 2%.

The repo market was established in early 1990s and is the most active money market in China. It consists of the interbank repo market and the stock exchange repo market (mainly in Shanghai Stock Exchange), with the former accounting for over 80% of the total transaction value in 2005. Participants in the repo market include the central bank, commercial banks, securities firms, mutual funds, insurance companies, and non-financial institutions. There are two types of inter-bank repo transactions: collateralised repo (the underlying bond is not transferred in ownership but put into a custodian account) and outright repo (ownership of the underlying bond is transferred). Currently, the majority of the interbank repo transactions are collateralised. In 2005, the total value of the collateralised interbank repo transaction was RMB15.7 trillion, while that of the interbank outright repo was RMB0.2 trillion. Similar to the interbank money market, the transactions in the repo market are mainly short-term. In 2005, 46.6% of the total transaction value of inter-bank collateralised repo is of maturity of one day and 39.3% of it of seven days.

The total value of outstanding bill discounted has grown from RMB0.015 trillion in 1998 to RMB1.4 trillion by the end of 2005. The total value of bill discounted were RMB6.8 trillion in 2005, compared with transaction of RMB18.2 trillion and 1.3 trillion full-year transaction in repo and interbank offering markets.

Bond Market

China's bond market consists of the interbank bond market and the stock exchange bond market. The total value of the outstanding bonds in the inter-bank bond market was RMB 6.8 trillion at the end of 2005, while the total value of outstanding bonds in the stock exchange market was RMB 0.4 trillion

Market participants in the inter-bank bond market include the central bank, commercial banks (both domestic and foreign), securities firms, mutual funds, insurance companies, credit cooperatives, and non-financial institutions. The number of market participants has increased rapidly to 5,508 by the end of 2005.

The Ministry of Finance, PBoC, and financial institutions (mostly policy banks, such as China Development Bank, Agricultural Development Bank of China) are major issuers in the interbank bond market, accounting for 30.8%, 37.5%, and 27.3% of total outstanding bonds at the end of 2005 respectively. Corporate bonds and commercial papers have smaller shares, representing 2.5% and 1.9% of total outstanding bonds at the end of 2005. Though the absolute amount of outstanding commercial papers is small, it has recorded rapid growth since its introduction in May 2005 and become an important substitute to short-term bank loans. The approving authority for the issuance of corporate bonds is the National Development and Reform Commission (NDRC), while that for commercial papers is the PBoC. Nearly 70% of outstanding bonds will mature within five years.

Box 2: PBoC's Open Market Operations (OMO)

Open market operations consist of renminbi operation and foreign exchange operation. The renminbi operation started on 9 April 1996 and the foreign exchange operation started in March 1994.

In 1998, the PBoC introduced the primary dealer system for renminbi open market operations. 2006 the primary dealers include 40 commercial banks that can trade directly with PBoC on bonds with large denominations. The bonds can be treasury bonds and policy financial bonds (bonds issued by policy banks). The transactions could be repurchase agreements, outright purchasing or selling bonds in the secondary market, issuing or buying back central bank notes by the PBoC. The repurchase agreements include repos and reverse repos. For a repo transaction, the PBoC sells bonds to the primary dealer and agrees to buy them back at a fixed date later. A repo transaction withdraws liquidity immediately and injects liquidity later when the agreement matures. A reverse repo transaction has the opposite effect. Outright purchasing or selling of bonds in the secondary market and issuing or buying back central bank notes work in a similar way.

Open market operations in the foreign exchange market involve buying and selling of foreign exchange (mainly the US dollar) against the renminbi. In recent years, there is appreciation pressure on the renminbi, so the PBoC mostly sells renminbi and buys foreign exchange, injecting liquidity into the market. To neutralise the monetary impact of foreign exchange purchases, open market operations in the renminbi market increasingly becomes an important tool for the PBoC to manage interbank liquidity.

Appendix 1: Interest Rates Set by the PBoC

	Interest Rates, p.a.	Date of Adjustment
Central Bank Lending Rates		2004.03.25
20-day	3.33	
3-month	3.60	
6-month	3.78	
1-year	3.87	
Re-discount rate	3.24	
Interest Rates on Reserves		
Required Reserves	1.89	2002.02.21
Excess Reserves	0.99	2005.03.17
<u>Commercial bank</u>		2006.04.28
Benchmark Lending Rates		
6-month	5.40	
1-year	5.85	
1-3 year (including 3 year)	6.03	
3-5 year (including 3 year)	6.12	
Above 5-year	6.39	
Benchmark Deposit rates		2004.10.29
Demand Deposit	0.72	
3-month	1.71	
6-month	2.07	
1-year	2.25	
2-year	2.70	
3-year	3.24	
5-year	3.60	
<u>Housing provident fund</u>		2006.04.28
Personal housing loans		
Below 5 years (including 5 year)	4.14	
Above 5 years	4.59	

Source: CEIC